Chapter 1

1.0 History of Environmentally Preferable Purchasing (EPP)

Environmentally Preferable Purchasing (EPP) was first introduced in 1993 when President Clinton signed Executive Order (EO) 12873, *Federal Acquisition, Recycling, and Waste Prevention.* In 1998, President Clinton signed EO 13101, *Greening the Government Through Waste Prevention, Recycling, and Federal Acquisition*, which superceded the previous EO. However, it did retain similar requirements for the U.S. Environmental Protection Agency (EPA) to develop guidance to address environmentally preferable purchasing. EPA subsequently developed a *Final Guidance on Environmentally Preferable Purchasing* (www.epa.gov/opptintr/epp/finalguidancetoc.htm). EPA's final guidance document was designed to help federal agencies comply with President Clinton's EO 13101.

1.1 What is Environmentally Preferable Purchasing?

The federal government defines environmentally preferable purchasing, or EPP as it is more commonly known, as "*...products or services that have a lesser or reduced effect on human health and the environment when compared with competing products or services that serve the same purpose. This comparison may consider raw materials acquisition, production, manufacturing, packaging, distribution, reuse, operation, maintenance, or disposal of the product or service.*"

What this really means is the goal of an EPP program is to get purchasers to select products that have a reduced effect on human health and the environment, when compared to other competitive products. Purchasers should consider the ***life cycle*** of the product. A product's life cycle considers all aspects of the product such as purchasing of raw material, manufacturing, packaging and distribution, use, and finally, disposal.

Environmentally preferable products can include items such as:

- Recycled content products
- Less toxic products
- Products with less packaging
- Water conserving products
- Biodegradable products

1.2 Does Our School Have to Use EPP?

Although Kentucky does require that schools implement recycling, as long as it is economically feasible, there are no state requirements or federal requirements for schools to implement the EPP program.

The goal of this training manual and the accompanying training is to help schools develop their own EPP Program. Although EPP can and does focus on many types of different products, the goal of this training focuses on identifying EPP products with respect to janitorial cleaning supplies. After this training is completed, it will be up to the individual schools to decide if they want to implement EPP.

1.3 Who are KPPC and SAR?

The Kentucky Pollution Prevention Center (KPPC) was established in 1994 through a Kentucky legislative mandate. KPPC serves as the state's resource for pollution prevention (P2) technical assistance to Kentucky industries, businesses, schools, and many other organizations. KPPC is located within the Speed Scientific School at the University of Louisville, but is responsible for working with organizations throughout the Commonwealth. Many of KPPC's services are free, non-regulatory, and confidential.

SAR is a non-profit organization that was established in 1997. SAR focuses on promoting environmental awareness and recycling among schools located in eastern Kentucky. Initially, SAR worked with just a few schools in only a few counties, however their region eventually grew to over 205 schools representing nearly 21 counties.

KPPC and SAR understand the importance of environmental stewardship among our communities. The EPP program is an important step towards a safer and cleaner environment. It is our goal that this training manual will provide the foundation necessary for your school to implement a successful EPP program.

Chapter 4

4.0 How to Implement an EPP Program

Implementing an EPP program will require time and effort from a variety of individuals. Though it may seem like a huge task, large state governments like the State of Massachusetts have developed their own successful EPP program. The implementation process has been separated into a series of steps that will hopefully allow things to move more smoothly.

4.1 Step One – Inventory Current Cleaning Products

A Product Inventory Sheet is included in **Appendix A**. This is used to identify the types and quantities of products that your custodial staff is currently using. This basically includes toilet bowl cleaners, floor cleaners, glass cleaners, etc. Remember, this program only focuses on custodial cleaning products and does not look at other products outside of this specific area.

In order to collect accurate product inventory information, you will want to interview your purchasing personnel, custodial staff, and others that may have knowledge of your cleaning products. It is important to talk to all groups; you may be temporarily out of stock of a particular product and not know it unless you talk to all parties. Make sure you have developed a complete list of all the cleaning products used.

4.2 Step Two – Identify Cleaning Product Ingredients & Safety Concerns

After you have fully inventoried your custodial cleaning products, you will then need to identify the health and safety of each product. Remember, the purpose of implementing

this EPP program is to find substitute cleaning products that have reduced effects on the health of your people, and on the environment where they work.

There are two primary ways to evaluate the health and safety of your cleaning products; use the material safety data sheet (MSDS) that should accompany each cleaning product you use, or read the labels on each cleaning product. The MSDS provides more detailed information and will be briefly discussed in this section, but a more thorough discussion of an MSDS is presented in **Appendix B.**

An MSDS provides information about a particular product and hazards that may be associated with that product. The federal Occupational Safety and Health Administration (OSHA) mandate MSDS's. OSHA requires every company that manufactures or distributes hazardous chemicals in the United States to prepare an MSDS. An MSDS must provide a variety of fundamental information related to the chemical that will allow the user to recognize and prepare for potential hazards associated with the chemical and prepare for and react to emergency situations. **It is required by law that employers provide copies of MSDS's to employees that use those specific products.**

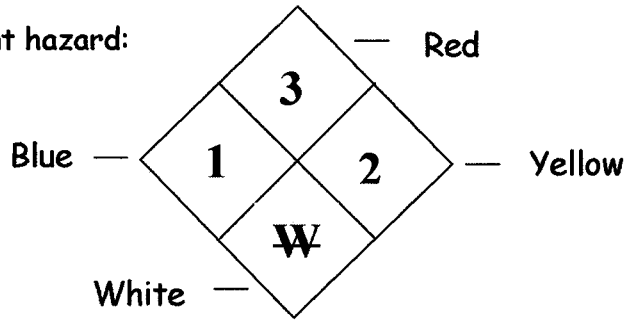
OSHA requires specific elements that must be contained within all MSDS's. However, it does not mandate the format this information is presented. Therefore, you will receive MSDS's from different companies that will not look alike. Examples of several different types of MSDS's are provided in **Appendix C.**

At a minimum, OSHA requires that every MSDS contain the following information:

- Chemical identity - The identity of the substance as it appears on the label.
- Manufacturers name and contact information - Manufacturer's name, address, telephone number and emergency telephone number. The date the MSDS was prepared and an optional signature of the preparer.
- Hazardous ingredients/identity information - Lists the hazardous components by chemical identity and other common names. Includes OSHA Permissible Exposure Limit (PEL), ACGIH Threshold Level Value (TLV) and other recommended exposure limits. Percentage listing of the hazardous components is optional.
- Physical/chemical characteristics - Boiling point, vapor pressure, vapor density, specific gravity, melting point, evaporation rate, solubility in water, physical appearance and odor.
- Fire and explosion hazard data - Flash point (and method used to determine it), flammability limits, extinguishing media, special firefighting procedures, unusual fire and explosion hazards.
- Reactivity data - Stability, conditions to avoid, incompatibility (materials to avoid), hazardous decomposition or byproducts, hazardous polymerization (and conditions to avoid).
- Health hazard data - Routes of entry (inhalation, skin, ingestion), health hazards (acute = immediate and chronic = build up over time), carcinogenicity, signs and symptoms of exposure, medical conditions generally aggravated by exposure, emergency and first aid procedures.
- Precautions for safe handling and use - Steps to be taken in case material is released or spilled, waste disposal method, precautions to be taken in handling or storage, other precautions.
- Control measures - Respiratory protection, ventilation (local, mechanical exhaust, special or other), protective gloves, eye protection, other protective clothing or equipment, work/hygienic practices.

Some MSDS's will have the National Fire Protection Association (NFPA) safety diamond. The diamond is divided into four sections, each designated with a different color that contains a number between 0 and 4; the lower the number, the less the hazard. Each section and color represents a different hazard:

- Red - Flammability;
- Blue - Health Hazard;
- Yellow - Reactivity; and
- White - Special Hazards.



Additional information on the NFPA safety diamond is provided in **Appendix D.** The Hazardous Materials Identification System (HMIS) can also be used to help identify hazardous materials. The HMIS uses horizontal bars rather than a diamond and focuses on worker exposure versus fire hazards. The numbers for both models represent the same level of hazard. Additional information on the HMIS is also provided in **Appendix D.**

Health	2	Blue
Flammability	1	Red
Reactivity	0	Yellow
Personal Protection	B	White

Although MSDS's provide much good information, they can have errors, the data can be incomplete, etc. - in short, they may not tell the whole story. That is why it is equally important to look at the cleaning product labels, <u>in addition to</u> the accompanying MSDS's. Look for warnings on the labels such as CORROSIVE, CAUTION, WARNING, DANGER,

POISON, FLAMMABLE, COMBUSTIBLE, etc. If, after reviewing the MSDS and the product label you are still unable to make a decision as to the safety of the product, contact the product manufacturer, vendor, distributor, etc. and request additional information.

4.3 Step Three - Listing Product Attributes

Identifying health and safety impacts of your cleaning products is not enough. You will need to take the information that you learned (via the MSDS's, product labels, etc.) and develop standards that you can compare your products against. Unfortunately, there are no universal standards that have been established to determine if certain cleaning products are environmentally preferable. However, some organizations have identified "attributes" they consider when purchasing environmentally friendly cleaning products. Several EPP projects have been implemented that focused on janitorial cleaning products. These include a joint study conducted by the Government Services Administration (GSA) and the EPA in 1993, and a second program implemented in the City of Santa Monica. Both studies (among others) are included in **Chapter 6 - EPP Case Studies** and have identified key environmental attributes that were considered when purchasing environmentally friendly cleaning products. These attributes are presented below.

- Skin/Eye Irritation - the potential for adverse reactions from skin/eye exposure to the product.
- Chronic health risks - the likely chronic health risks from skin and inhalation exposure to the product.
- Biodegradability - toxic chemicals usually degrade to less toxic forms. The faster a chemical degrades, the lower the exposure potential. As a rule of thumb, for an "environmentally-preferable" product, more than half should biodegrade within 28 days. The balance of the product should biodegrade within a few months after its application.

- Carcinogens - products that contain known or suspected carcinogens (cancer causing) should not be used.

- Percentage of volatile organic compounds (VOCs) - VOCs are known to contribute to smog formation and create health risks. Products that do not contain VOCs in concentrations that exceed 10% of the weight of the product are preferred.

- Amount of product packaging - products with reduced packaging decrease the volume of waste that must be disposed.

- Presence of ozone depleters - ozone-depleting compounds should be minimized. A list of ozone depleting compounds is included at the back of this chapter.

- Potential exposure to the concentrated cleaning solution - the product dispensing method should include safety precaution designs to minimize exposure to the concentrated solution.

- Flammability - non-flammable products are preferable.

- Presence of fragrances and dyes - cosmetic additives can be considered unnecessary additives that increase overall life-cycle impacts and that could increase health and safety and ecological concerns.

- Energy needs - products that work effectively in cold water reduce energy consumption.

- Presence of petroleum or hydrocarbons - petroleum or hydrocarbon chemicals should be minimized whenever possible.

- Corrosiveness - does the product have an unusually low or high pH? Water has a pH of 7.0.

These attributes are not meant to be inclusive of all attributes that other organizations have identified. However, they provide an excellent framework from which your school can develop an environmentally friendly procurement program for janitorial cleaning products. **Appendix E** contains a blank EPP *Selection Criteria Checklist* with a list of

attributes that your school may want to use. For simplicity, the checklist does not include all attributes listed in this chapter. Also included in **Appendix E** is a sample *Selection Criteria Checklist* for a glass cleaner.

4.4 Step Four - Developing a Purchasing Policy/Bid Specifications

You must develop bid specifications for your potential vendors. This will take some time, but the effort is well worth it. Develop the bid specifications so that they are clear and easy to understand. It will require much less of your time in the long run if the specifications are easy to read and very succinct. Your bid specifications will include the same attributes you selected from the previous section.

To help you develop your own bid specifications, some examples are included in **Appendix F**. Two of these were provided by the City of Seattle and the state of Washington. They may be more detailed than what you initially need, but it should give you a good start. A third generic example is also included in this appendix. It is probably a good idea to require product samples as part of your bid specifications so you can test them at your school.

4.5 Step Five - Identifying Alternative Cleaners

Finding a list of vendors, let alone a list of alternative cleaners can be a time-consuming project. Included in **Appendix G** is a list of vendors that offer environmentally friendly cleaning products. This is not an endorsement of these vendors, nor do these vendors necessarily carry products that will meet your specifications. It is best to start with your current vendor to see if they carry the products that you are seeking. The next step is to search other vendors and find out the types of products they may carry.

Your current vendor, along with others you may contact may not readily have the information necessary to make your decisions. But, you are in the driver's seat, if they want your business, they will do what is necessary. It will likely take time and patience. They are probably not accustomed to their customers asking for the kind of information you need. Ask for MSDS's for the products you want. If these are not readily available, request that they get this information from the manufacturers directly. They may not want to go to this trouble. You can either try to find another vendor, or ask who the manufacturer is and make a request for the MSDS's directly. Always ask for samples of the products that you are interested in. Many vendors will want to visit your school to demonstrate their product. Take them up on this. This will give you an opportunity to meet them directly and determine if they are someone that you want to do business with. Be sure to arrange their visit with your custodial staff. They will want to be there for the product testing.

4.6 Step Six - Make the Switch!

You have come this far, now it is time to finish the job. You will want to establish a target date when you would like to have your EPP program in place. Without a target date, it is easy to get sidetracked, and before you know it, too much time has elapsed along with any enthusiasm your school may have had. It is important to establish a realistic target date; too short and you are sure to miss it, too long and folks may lose interest. There is no rule of thumb here. You will have the best idea as to how long it will take your school to implement the program.

Training will be absolutely necessary. Your new products may require a completely different approach; therefore it will be necessary to arrange training for your custodial staff. Ask the vendor that you have selected to provide training to use their product. If

they want your business, they will be happy to provide this training. Remember, this is something new, so don't be alarmed if your staff is less than enthusiastic. It is important to explain why you are changing the program, and stress the health benefits they can expect. Change for no reason will be met with frustration, lack of cooperation, and ultimately may result in your program failing.

Don't forget that as you phase the program in, you will need to dispose of your old cleaning products. There are several options you have available:

- Donate them to other organizations that can use them;
- See if your vendor will take them (not very likely, but it won't hurt to ask); and
- Proper disposal - make sure you know the proper disposal method for all of your old products! Contact the Kentucky Division of Waste Management at 502-564-6716 with disposal questions.

Remember, you may have limited storage for your cleaning products, so it is best to try and dispose of as many of your old cleaning products as possible, before your new, environmentally friendly products arrive!

Chapter 7

7.0 EPP Resources

There are many different resources available for environmentally preferable purchasing. Many of the sites listed on the following pages will include additional links to still other sites with even more information.

7.1 EPP Online Resources

EPA's Environmentally Preferable Purchasing Program Web Site

www.epa.gov/oppt/epp

Includes EPA's guidance on EPP, descriptions of federal pilot projects, and tools and resources - including the EPP database, collections of case studies, and electronic copies of the EPP Update.

EPP Update

www.epa.gov/opptintr/epp/docupdates.htm

EPA's semi-annual newsletter on EPP program activities. Issues of this publication are available online.

EPP Database

http://notes.erg.com

Contains information on more than 600 products and services. It provides links to contract language and specifications created and used by federal and state governments and others to buy environmentally preferable products and services.

EPPNET

www.nerc.org/eppnet.html

The Northeast Recycling Council (NERC) established the EPPNET list server to link federal, state, local, and private procurement and environmental officials. Potential participants must first register for approval.

Hospitals for a Healthy Environment (H2E) Environmentally Preferable Purchasing Guide

www.geocities.com/EPP_how_to_guide

While aimed at hospitals, the principles and steps in this EPP guide are applicable to any type organization. This Web site is a cooperative project of the U.S. EPA and the American Hospital Association.

National Pollution Prevention Roundtable (NPPR) EPP Discussion Group

www.p2.org/workgroup/epp

The EPP Discussion Group was formed in 1999 to promote networking and communication among people practicing EPP and people interested in learning about EPP; minimize duplication of effort on EPP issues through increased communication; and serve as a resource to NPPR members interested in EPP.

Pacific Northwest National Laboratory EPP Training Slide Presentation

www.pnl.gov/esp/greenguide/tutorial/sld001.htm

Though focusing on purchasing requirements set forth by E.O. 13101 for federal agencies, this site provides an online, printable slide presentation on EPP that can be used by any organization.

The Environmentally Preferable Purchasing Guide

www.swmcb.org/EPPG/1_1.htm

Published by the Solid Waste Management Coordinating Board, a group consisting of six metropolitan counties in Minnesota, this online EPP guide is aimed at government and school purchasers. The guide reviews more than 30 product areas, providing information on cost, performance, specifications, and availability.

King County, Washington Environmental Purchasing Program

www.metrokc.gov/procure/green

King County's Web site provides a history of the county's EPP policies, descriptions of its experience with various environmentally preferable products, bid and contract specifications, and local vendor information.

Massachusetts Environmentally Preferable Products Procurement

www.state.ma.us/osd/enviro/enviro.htm

The Commonwealth of Massachusetts is one of the first states in the country to initiate an EPP program. Its Web site includes state EPP policies and regulations, bid and contract specifications, and product information and experience.

Minnesota Materials Management Division Environmentally Responsible Purchasing

www.mmd.admin.state.mn.us/envir.htm

Provides new updates on various products available to state agencies, lists environmentally responsible products and services available, highlights state legislative and executive order requirements, and includes an electronic version of the state's biennial report on EPP.

City of Santa Monica's Purchasing Policy

www.ci.santa-monica.ca.us/environment/policy/purchasing

Provides criteria for procuring products and services, negotiating contracts and bid specifications, and complying with city ordinances through environmental preferable purchasing.

Office of the Federal Environmental Executive

www.ofee.gov

The Office of the Federal Environmental Executive serves to implement E. O. 13101, which is designed to further expand and strengthen the federal government's commitment to recycling and buying recycled-content and environmentally preferable products. The Web site contains various reports and resources.

U.S. Department of Energy's Federal Energy Management Program (FEMP)

www.eren.doe.gov/femp

FEMP seeks to help government agencies reduce energy and water use, manage utility costs, and promote renewable energy. The Web site provides information about the program's mission, technical assistance resources, and documents highlighting program success stories.

Medical Academic and Scientific Community Organization, Inc. (MASCO)

http://www1.netcasters.com/mercury/

MASCO has developed a mercury database for 1,147 different compounds. Users can select one of the compounds listed from the database and then calculate the quantity of mercury in the compound based upon the total amount used.

Cleaner Technologies Substitute Assessment (CTSA)

http://www.epa.gov/opptintr/dfe/tools/ctsa/

CTSA is a methodology for evaluating the comparative risk, performance, cost, and resource conservation of alternatives to chemicals currently used by specific industry sectors. It was developed by the EPA Design for the Environment (DfE) Program, the University of Tennessee Center for Clean Products and Clean Technologies, and other partners in voluntary, cooperative, industry-specific pilot projects.

7.2 EPP Documents

To order hard copies of these publications (except WasteWise Updates), contact the Pollution Prevention Information Clearinghouse at 202-260-1023 or by e-mail: ppic@epa.gov. The following documents are also available online at www.epa.gov/opptintr/epp/doccase.htm.

Federal Pioneers: Environmentally Preferable Purchasing Stories from the Federal Government

EPA 742-F-00-008. September 2000.

Includes case studies on 27 successful applications of EPP in the federal government. The examples include everything from photocopiers to custodial services. They are from a diverse group of agencies - from the Department of Interior to the Navy - demonstrating the different ways EPP can be applied and providing models for other federal purchasers.

Private Sector Pioneers Report

EPA742-R-99/001. June 1999.

Highlights the EPP efforts of 18 private companies. Besides expanding the market of green products, many of the companies in the report are preventing pollution and saving millions of dollars through EPP.

State and Local Government Pioneers: How State and Local Governments Are Implementing Environmentally Preferable Purchasing Practices

EPA742-R-00/004. November 2000.

Illustrates how more than 40 state and local governments are implementing EPP. The study shows that green purchasing is expanding beyond recycled content products to include many other environmental attributes, such as chlorine-free, reduced volatile organic compounds content, use of alternative fuels, and reduced product packaging.

Green Spending: A Case Study of Massachusetts' Environmental Purchasing Program.

EPA742-R-98/002. August 1998.

Highlights the unique approach taken by the Commonwealth of Massachusetts in its environmental purchasing program. The commonwealth's proactive decisions regarding environmental purchasing have made the state a leader among state governments in EPP.

Leading by Example: How EPA Incorporated Environmental Features into New Buildings.

EPA742-R-98/001. January 1998.

Provides two case studies to demonstrate how large building projects can cost-effectively incorporate environmental features, while also addressing the concerns unique to each site. The case studies describe how EPA balanced function, cost, and environmental impact while designing and constructing two new EPA facilities.

Defending the Environment at the Department of Defense.

EPA742-R-99/002. July 1999.

Documents how the U.S. Department of Defense (DOD) introduced EPP into routine renovations of the Pentagon and several other DOD facilities.